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GB 1575313 A US 4790629 A

(58) Field of Search

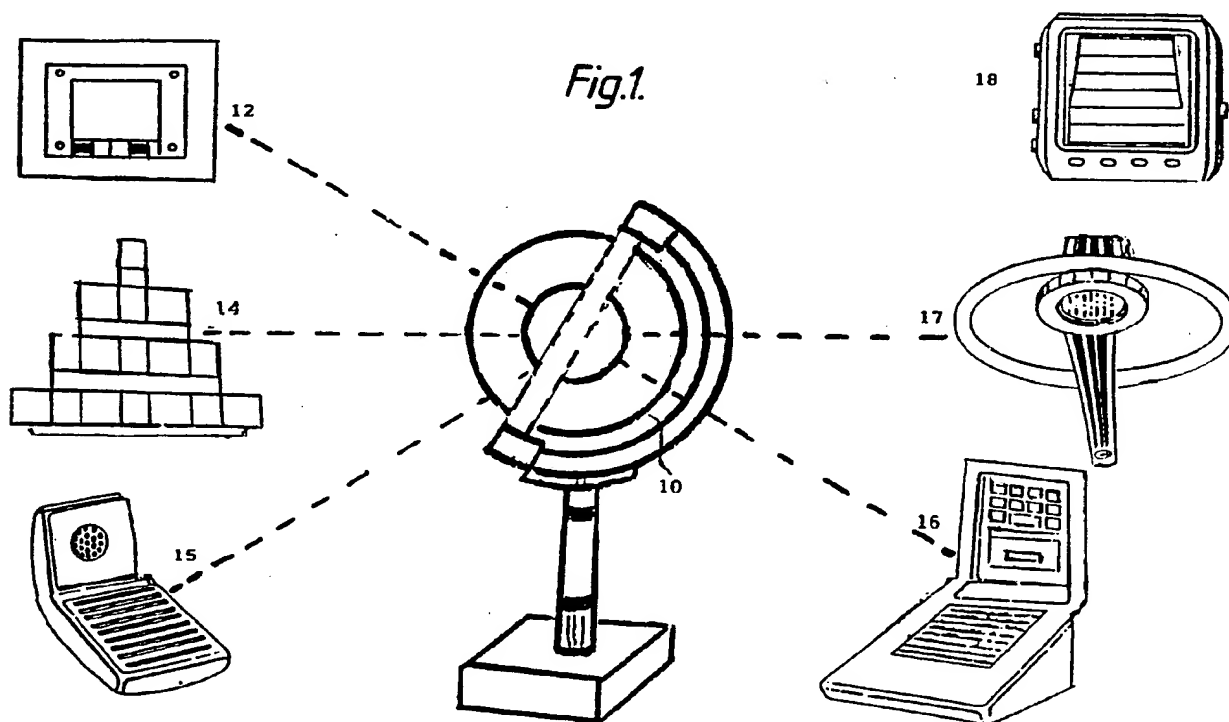
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(54) A programmed lighting display system

(57) A light projection apparatus 10 which produces a lighting display for the additional entertainment of a person as listener or viewer is under the control of a microprocessor and is used in conjunction with programmed aroma dispensers 16, 17, 18.



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Fig.1.

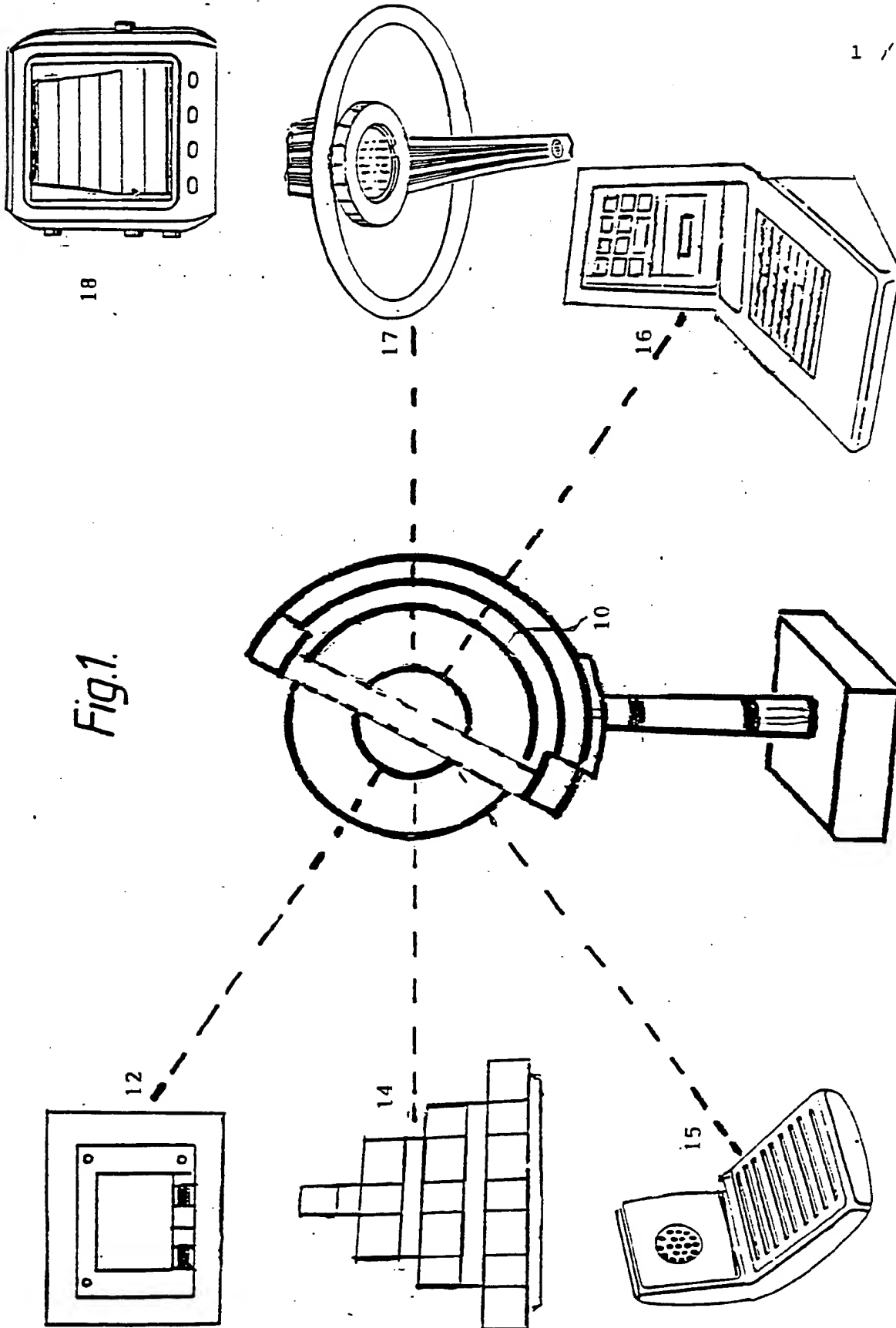


Fig.2.

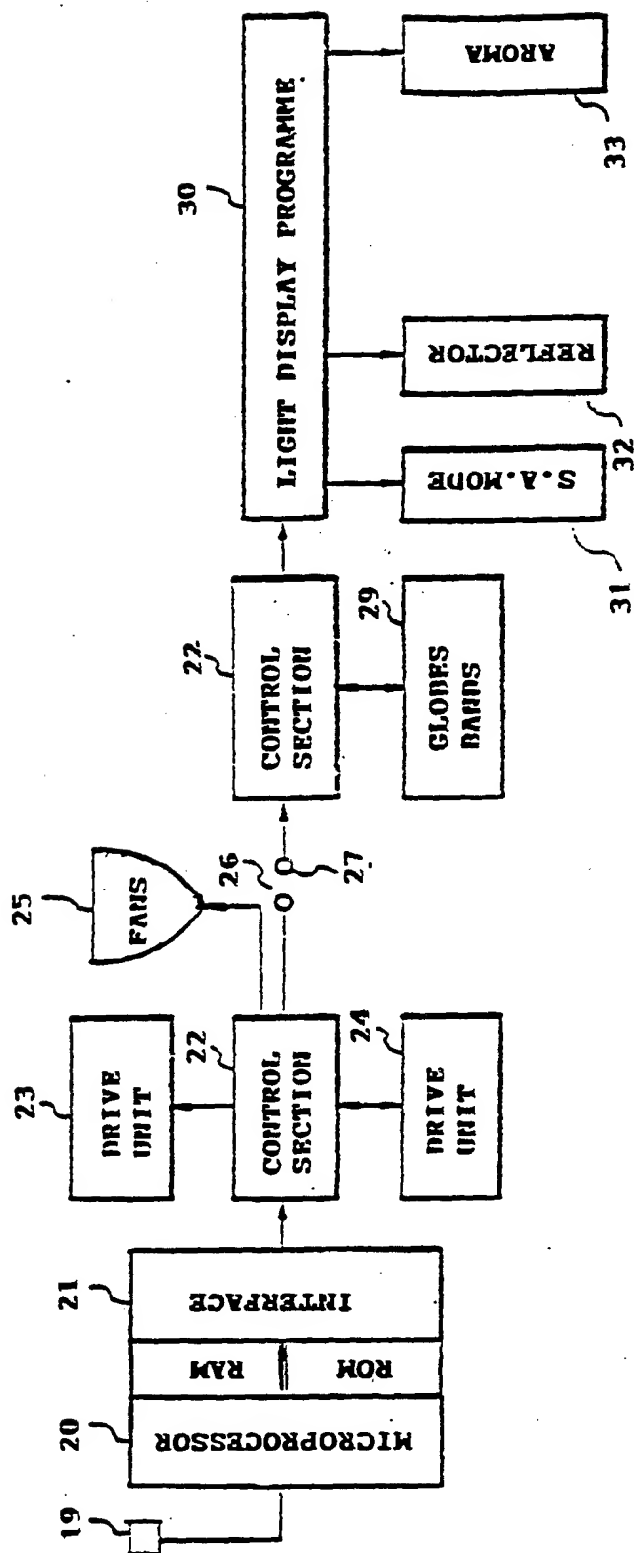


Fig.3.

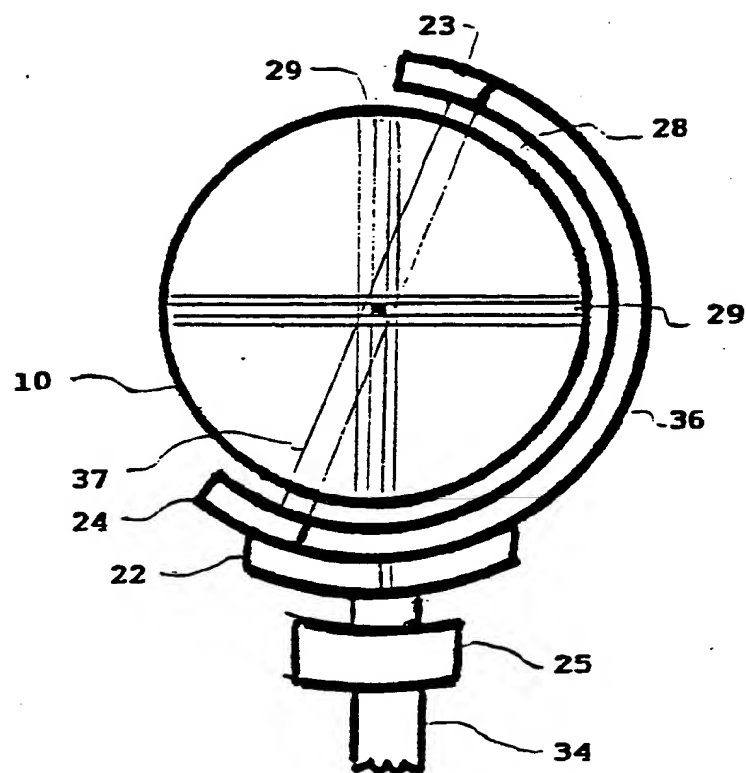


Fig.4.

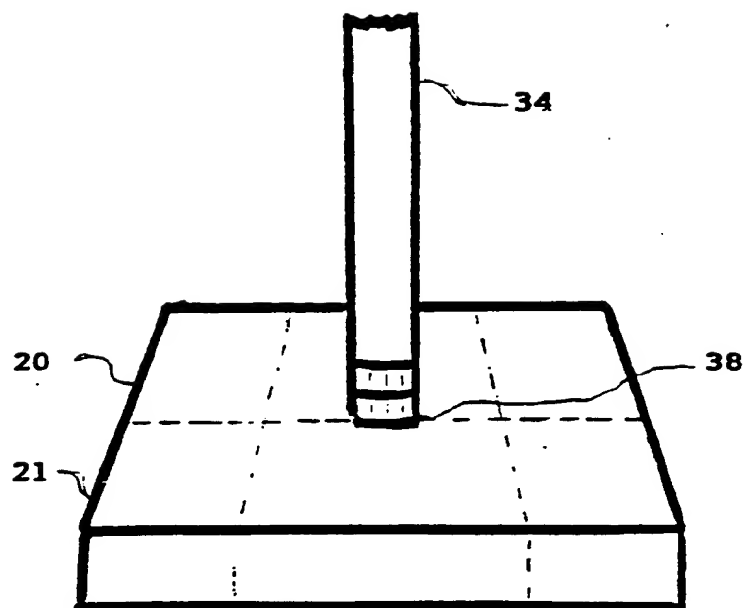


Fig. 5.

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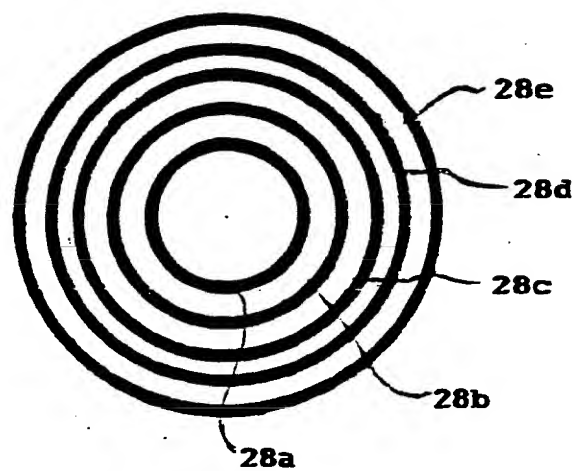


Fig. 6.

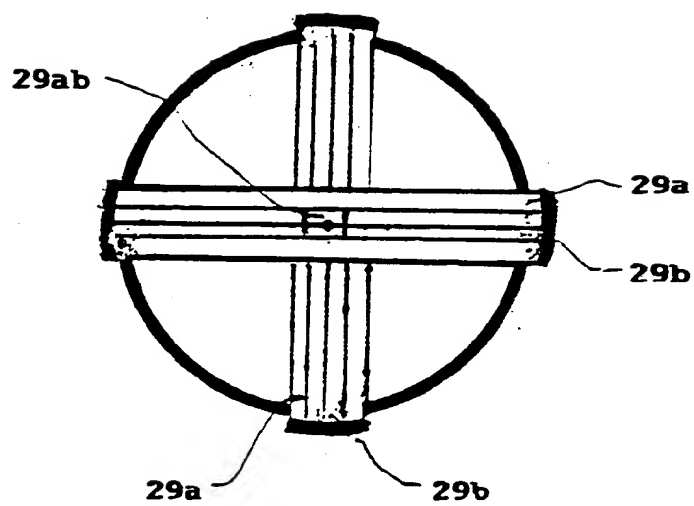


Fig.7

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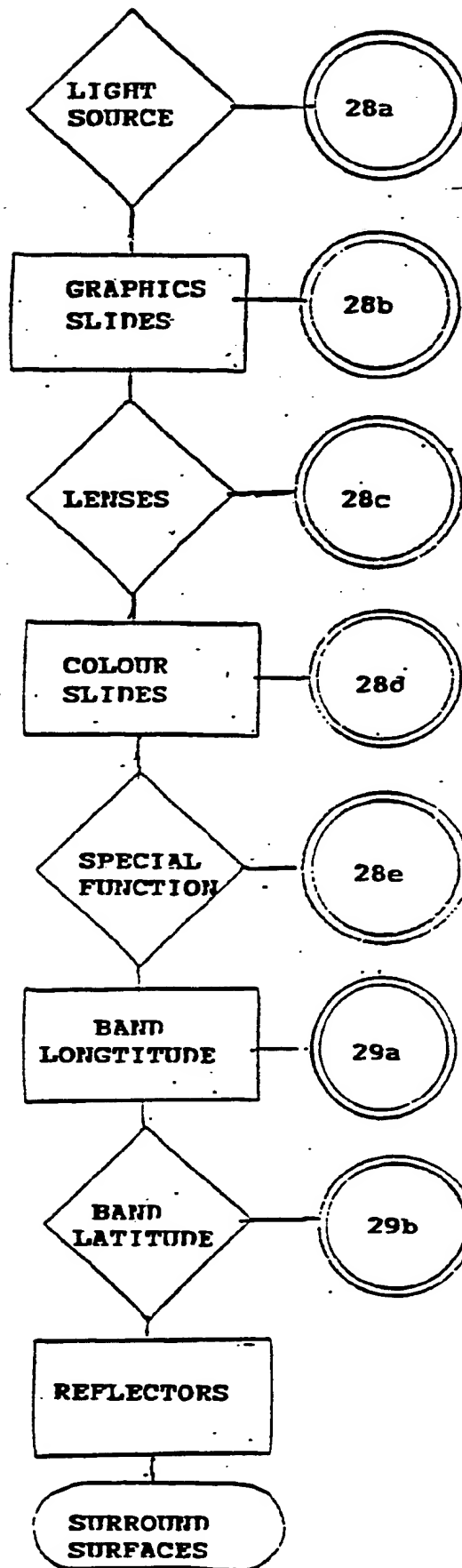
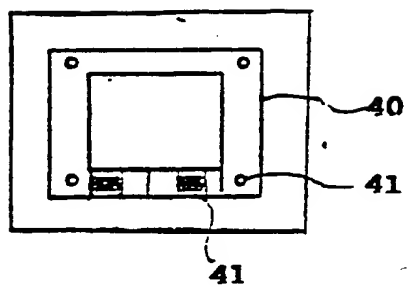
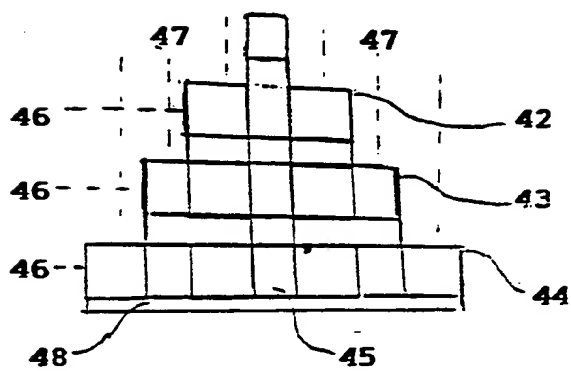


Fig. 8.

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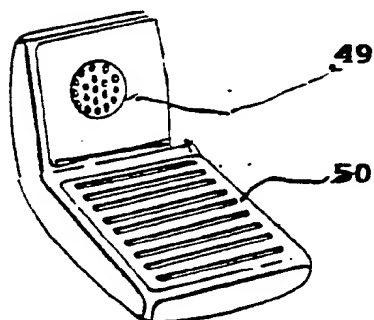


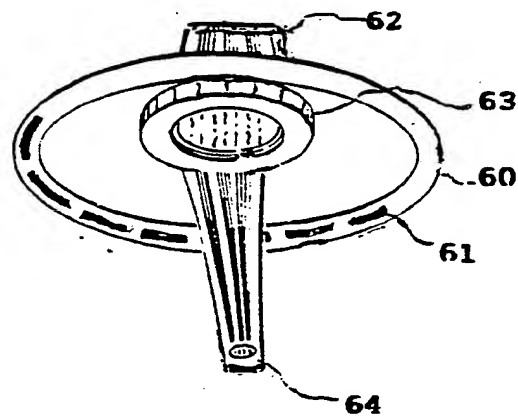
Fig. 9.

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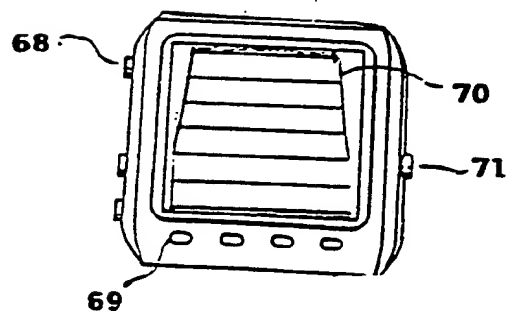
16.



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This invention relates to a programmed lighting display system.

No lighting display system with the objectives of this invention, achieved by the methods employed by this system, appear to be in commercial use anywhere in the world.

Technology aimed at improving the performance of visual and audio equipment continuously emerges but there does not appear to be any related effort to enhance the viewer or listeners experience of the concomitant stimuli as described in this invention.

Inter active television, virtual reality and 3D spectacles are attempting to provide a new dimension.

Lighting display systems would seem heretofore to have consisted of multiple light sources, controlled but not programmed, of units large in size and number using different light beams, coloured lenses and stationary or revolving reflector means.

The main applications of public lighting displays are to be found in pop music concerts, dance halls, night clubs or other public exhibitions.

The use of laser technology has made possible open air displays of lighting in exhibition format.

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Video laser technology with lighting effects is to be found in some games in video machines used in amusement arcades.

Nanotechnology will assist the development further of the system of this invention.

The cost, in every respect, of the lighting display of this invention compared to existing types of display is minimal.

The object of the equipment of this invention is to make possible its use in small areas such as found in the lounge or studio of any private accommodation or dwelling.

VSLI technology could make possible total control of the home environment. Leisure and entertainment are major areas. This invention lighting display could play a major role.

The object of this invention is to seek to add an extra dimension to the stimuli received by any viewer or listener through their senses of sight, sound and smell.

This to be achieved by the provision of a lighting display and an aromatic programme directly related, both being written by experts in their particular field.

The object is intended further to be achieved by enhancement of the personal stimuli, visual or audio or both, creating an ambience which is a total assault on the senses of the viewer and listener resulting in that they feel themselves to be in a cavern of light and illusion and every other stimulation of the senses, creating in effect a cocoon of immediate spontaneous experience.

The programme controlling the encompassing stimuli would be written by experts to enhance and ensure the specific experience related to the type of stimuli and entertainment. Films of horror, romance, sex, comedy or in the audio experience, classical, popular or other types of pop and rock music would have its separate programme.

Colour and aroma therapy could constitute a distinct, stand alone, programme when required.

Mood enhancement by specific methods, and carefully calculated, could be an additional objective of the system embodied in this invention.

The type of lighting display would have, as its essential objective, that it relates to the conscious or subconscious mind of the viewer or listener. This being achieved by the programme controlling the specific input of light colour movement and aroma.

This would also apply in designated circumstances where the display has the objective of a psychological aid, involving all the senses so assisting colour therapy, aroma therapy and all forms of meditation.

The display system that is the subject of this invention consists of a light source with projection means, a lighthouse in effect. Data input means, a card or cartridge, micro chip or other means, control means of a number of globes each within the other and revolving about the light source.

Each globe has specific functions within the synchronised system, one provides the colour to the beam of light, another the image projected onto the surrounding surfaces

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and its movement, another would have a lens of special design and a camera type shutter, another a specific performance required by any individual user of the invention, this could be any type of personalisation of any lighting display programme.

Reflectors would be positioned by design and would consist of any sort of object, picture, mirror, statue, ornament. These would be designed to have every type of reflector quality, luminosity, light retention or distortion, and every type of surface reflection.

They could if battery operated provide revolving reflection and many other options providing a basis for a number of forms of mobile art.

Original design schemes could be further achieved by the use of spectacles with specific performance, perhaps battery operated with photo chromatic lenses that interact with the source of stimuli and the correlated lighting display.

Beams from the light source could be programmed to activate reflectors in any specified manner and to activate a programme of aroma release using micro sponges or other means. Aroma dispensers could be designed for this purpose or by any form of operation using manual methods. The essential correlation with the visual or audio stimuli and the lighting display would form part of the data used in programming.

Light retention cells, specially printed foil and other means could be used to design special purpose reflectors.

Aroma dispensers could also be programmed and activated by light beams using micro sponges or other time release methods. Simple manual control could be also used effectively.

The objective of creating a nerve network of stimuli, sight sound and smell within a cavern of light and movement is paramount and could create a new dimension in terms of personal sensory experience.

The above and other objectives, features and advantages of the present invention will become more apparent from the detailed description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

- Fig. 1 is a layout drawing showing a programmed lighting system.
- Fig.2 is a schematic diagram showing the lighting display system, using an input device, read and memory device control section, synchronised drive means revolving globes and bands, reflector means and aroma dispensing means.
- Fig.3 is a view of the lighting display unit with its support system.
- Fig.4 is a view of the base and column support system of the lighting projector unit.
- Fig.5 is a view of the different revolving globes.
- Fig.6 is a view of the bands surrounding the exterior globe.
- Fig.7 is a schematic diagram of the passage of a single light beam from source to display.

Fig.8 is a view of examples of reflectors that could be used in the system.

Fig.9 is a view of examples of dispensers that could be used in the system.

Referring to Fig. 1 of the drawings, a lighting display system embodying the present invention is shown. This particular embodiment consists of a lighting unit 10 that, similar to a lighthouse, projects beams of light onto the surfaces surrounding the unit, ceiling, floor and walls. Reflector units 12 and 14 with differing functions. A further reflector unit 15 for specialist application, that of colour therapy. Aroma dispensing units, 17 mobile, and 18 static. A further aroma dispensing unit 16 for specialist application, that of aroma therapy.

The format or design of the system to be employed presents a wide choice for the user of the system.

A very basic system could consist of only the lighthouse unit.

A comprehensive system could provide extensive features of design tailored to the exact requirements of the user. This would provide for all specialist applications.

The beam of light passing through the revolving globes and bands receives differing properties from the globes and bands.

These properties are further processed by the type of reflector, stationary or mobile, each with differing and distinct design functions.

The aroma dispensers functions are in direct correlation with the type of lighting display, which is itself a result of the programme inserted into the lighthouse unit.

The result is a light display accompanied by a range of different aromas. Reflectors and aroma dispensers could be combined in a single unit. Mood enhancement for the viewer or listener is the primary objective.

FIG.2 Shows a schematic diagram of the programmed lighting display system.

The controlling circuitry of the light projecting unit includes a microprocessor with its associated memories and interfaces.

The input device, microprocessor and memory device are shown at 20. The interface at 21. The control section at 22.

The synchronised drive units 23, 24. The cooling means for the lighthouse unit 25. The revolving globes and bands 29. Display programme, shapes, colour and movement 30, using this as a printing format - light in place of ink.

The display mode for stand alone reflector displays 31.

Reflector units 32. Aroma dispenser units 33.

Means of activating the lighting display by a user would be a manual or time switch or a remote control pad.

The control of the system and display is effected by a microprocessor having associated with it memory means wherein the memory means include a read only ROM which contains, when the system is in use, programmes for the microprocessor and other relatively permanent data associated with the operation of the display. Other relatively permanent data associated with the display, and therefore the operation of the lighthouse unit, could include a random access memory RAM which would contain when the system is in use, non permanent data, to maximise the range of the display format.

Dealing with output to and input from the interface, this is dictated by the fact that the exact nature of the interface is application dependent.

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The data fed to the synchronising drive units 23, 24 could additionally cause specific light beams to be directed to receptors or sensors, mounted on reflectors, to activate them, or to the aroma dispensers to activate them also, by temperature or other means such as light sensitive cells.

This diagram shows two terminals 26 and 27. There would be a plurality of lines to and from the terminals serving each unit of the system.

A voltage regulator is shown at 19.

Referring to FIG 3, the lighthouse unit 10 shown in FIG 1 is mounted on an axis about which the assembly of globes rotate. The pivoting globes are suspended within a framework, 36, which is shown as generally used to present models of the earth but could take any functional form.

The whole unit swivels on the upright column and frame 34 through 360°.

The framework would have an arrangement of adjustable small screens to prevent interference with any type of visual stimuli, for example a television set.

The drive units at 23 and 24 operating on data provided to the control sections 22.

The synchronised rotation of the globes, 28, and bands, 29, produce the programmed display.

The cooling system means, 25, could be pre-set manually. or controlled by sensors or other temperature activated means.

Referring to FIG 4 the base of the light projector unit would be of a design and dimensions to make possible the counter balance and stability of the unit whilst also providing suitable accommodation for the electronics, 20 and 21, plus any additional equipment.

Means of easy and rapid adjustability, 38, of the support column, 34, would ensure the light unit being at the optimum height for maximum effect.

Referring to FIG, 5, the globes revolving about the light source 28a each have a particular function to provide a specific result comprising a part of the programme essential to the resulting display.

The variations of formula are extensive in relation to the resulting display of movement, light and colour and special light beam qualities.

The light source would consist of specialist bulbs, high intensity, focus beams and every type of bulb which provides special performance qualities in display.

Referring to FIG.6, the circles or bands encompassing the revolving spheres would be static but with an inner revolving band, 29b, in both the longitudinal 29a and the latitudinal band 29a.

The objective of the two bands is to enable a personalisation of the display in part, a specific feature or to provide some specialised property particularly required by the user of the equipment.

The revolving bands within the fixed bands would be written into the synchronised programmes as for the revolving globes, this when required.

They could be on a separate or distinct programme two distinct divisions of the bands are superimposed and combined before a single light beam 29ab to provide a specific effect or display image.

The drive and synchronisation means used would equate in part to those used in camera and film equipment.

Referring to FIG 7, there is shown a schematic diagram of the possible course of a single beam of light from the source through the revolving globes and bands to the reflector, aroma dispenser when activated or direct onto the surrounding surfaces of the lighting display.

- 28a would house the bulbs of differing properties and performance.
- 28b this globe would have divided areas of functional shape, such as a slide in a projector, on which differently shaped graphic images would be outlined.
- 28c this globe would have a lens or plain glass within each divided area. The properties of the lenses would be as required and different to provide a range of specific effects required by the designed programme.
- 28d this globe would have divided areas of different colours.
- 28e this globe would be used for the presentation requirement of any essential specialist quality in a particular type of display.
- 29a this band in the longitudinal plane would be divided into specific areas and carrying personalised or distinct types of images being superimposed on the light beam for personalised use.
- 29b this band in the latitudinal plane would as required combine with band 29a for the same or similar purposes.

Referring to FIG 8 the number of different types of reflector that could be used to great effect is very substantial.

They divide basically for the purpose of the system employed by this invention into two categories.

The one is a static or stationary reflector device, the second a mobile or moving reflector, powered by mains electricity or battery power.

Spheres could, when required, have specific reflector properties and be suspended from the ceiling.

A designed display achieved by the positioning of selected types of reflectors could result in forms of mobile art or other forms of effective display.

REFLECTORS

The reflector 12 as an example only, could be designed in the form of a picture or mirror frame. The frame would be divided in some decorative manner to provide differing types of reflector qualities, 40.

This arrangement could, as required, be used as a combined reflector and aroma dispensing unit.

The specialist areas, 41, being light sensitive or temperature sensitive and reacting to programmed light beams. This format could provide a large number of combinations.

Reflector 14 as an example only, could be a battery or electricity supply operated mobile unit, but having also designed reflector functions.

A number of graduated rings, 42, 43, 44 revolving about a central column, 45, would in effect perform a similar function to that of the globes of the light source, using apertures either on top or at the sides of the rings, or both, to provide a display on walls, 46, or ceilings 47.

The base of the unit, 48, would have a revolving disc on which the bulbs would be mounted to any required design.

The whole unit could be mounted on a swivel frame or other mounting to permit a more variable display and single formats providing a specific supporting effect to the main display.

Reflector 15 as an example only, would be designed to assist in the specific requirements of colour therapy.

The reflector disc, 49, would be responsive to light beams or manual controls to provide specific colours or combinations on the spectrum unit, 50.

Therapy could be space and time effective by the reflectors being specially designed in light emitting plastic units as wall pictures.

AROMA DISPENSERS

Referring to FIG 9, the aroma dispenser forming part of the system which is the subject of this invention has the primary objective of mood enhancement in direct relationship to the type of lighting display programme.

The functions of the dispenser system follow the dictates of the experts in the field of aroma therapy.

An important factor will be the need for any system to be cost effective.

There would appear to be two main categories of dispensers possible in this invention. Those manually operated and those activated by heat or light sensitive means.

Dispenser 17 as an example only, would be mobile, battery or electrically energised, in the form of a rotating wheel or carousel, 60.

The outer rim or rims would have micro sponges, 61, mounted on the exterior and activated by heat from programme directed light beams.

The drive unit, 62, would provide control of the pattern of revolving parts, positioning of sponges or other means.

A divided circle of containers, 63, holding the different aromatic producing oils would maintain the sponges and provide a constant aroma to the tip, 64, as and when required or when the sponges are not active.

Dispenser 16, as an example only, could be manually operated, 65, or used by the insertion of time and type programmed cards, 66.

The differing aroma range, 67, would use heat, exposure to air or other means, or light beams from the main unit light source.

Dispenser 18, as an example, would be a stand alone unit with the capability of providing a sequence of aromas, a combination of aromas. The programme would be preset using the controls 68, 69,

The setting of the ventilator type shutters to direct the air and aromas, 70, would be controlled manually by the dial, 71.

In summary it will be seen that the present invention provides a lighting system which achieves a display function by the use of specific types of data programmes, assisted by reflector schemes expertly designed with aroma dispensers in direct correlation. The dispenser at 16 would be specially designed to effect the essential functions of aroma therapy.

The objective being that whatever stimuli the viewer or listener is receiving their mood is enhanced by the lighting programmes displayed supported by an aroma dispensing programme. A total assault on the senses and subconscious.

This objective results from the capability of the expertly written programmes to project and relate to any type of stimuli with a specific programme.

The combination of expertise required would issue from lighting engineers and designers, programmers, psychologists and therapists, perhaps artists also in that the system could be so interpreted to provide art forms, mobile art in novel formats.

The constantly emerging developments in technology particularly in nano technology make possible the creation of a cocoon or cavern of sensory experience using a nerve network, the subconscious and illusions, this within the home.

The extensive range of formats offered by the system that is in accordance with the present invention makes possible the enhanced pleasure of every person receiving visual or audio stimuli for their entertainment.

Peripheral facilities provided by the lighting system could be of use as features of television commercial breaks, child comforting, deep meditation, birthday and other types of parties in the home.

Various modifications will become possible by those skilled in the art after receiving the teachings of the present disclosure without departing from the scope thereof.

CLAIMS

1. A lighting display system that comprises light projecting apparatus which provides multiple programmed specific lighting effects. Input means for inputting data, control means connected to said input means, which perform a specified operation in accordance with an input signal from such input means to produce different and distinct categories of lighting displays. The data input constitutes one of a plurality of programmes that is distinctly related to and corresponds with the classification of the performance content of the audio or visual stimuli being received by a person.
2. A lighting display apparatus according to claim 1 which by use of its programmes directs specific light beams to activate mobile reflectors forming part of the display system or any other lighting effect means of the system.
3. A lighting display apparatus according to claim 1 which by use of its programmes directs specific light beams to activate aroma dispensers.
4. Any permutations of claims 2 and 3 that directly related to claim 1 and make possible a distinct and definitive category of experience in support of the lighting display programme which itself is dictated by the performance classification of the audio or visual stimuli.
5. Controlled lighting display apparatus effected by a microprocessor having associated with it memory means (ROM) also (RAM) and associated interfaces providing the range essential to the differing categories of audio and visual stimuli.
6. A lighting display system substantially as herein before described with reference to the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

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Relevant Technical Fields

(i) UK Cl (Ed.M) A6M (MFC); G2E (ENB); G2J (JLD)

(ii) Int Cl (Ed.5) A63J 17/00

Search Examiner
ALAN BLUNT

Date of completion of Search
3 JUNE 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: WPI

Documents considered relevant following a search in respect of Claims :-
1-6

Categories of documents

- | | |
|---|---|
| X: Document indicating lack of novelty or of inventive step. | P: Document published on or after the declared priority date but before the filing date of the present application. |
| Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. | E: Patent document published on or after, but with priority date earlier than, the filing date of the present application. |
| A: Document indicating technological background and/or state of the art. | &: Member of the same patent family; corresponding document. |

Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 1575313 (LASER IMAGES)	1
A	US 4790629 (RAND)	1

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